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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,110	06/09/2006	Toshio Hayashi	2006-0436A	7170
513 7590 12/07/2007 WENDEROTH, LIND & PONACK, L.L.P. 2033 K STREET N. W. SUITE 800 WASHINGTON, DC 20006-1021			EXAMINER CHO, JENNIFER Y	
			ART UNIT 1621	PAPER NUMBER
			MAIL DATE 12/07/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/574,110

Applicant(s)

HAYASHI, TOSHIO

Examiner

Jennifer Y. Cho

Art Unit

1621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>7/31/07, 10/1/07</u> . | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

This office action is in response to Applicant's communication filed on 10/1/07.

Claims 1-9 are pending in this application.

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/1/07 has been entered.

IDS

The information disclosure statements (IDS) filed on 7/31/07 and 10/1/07 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner.

Claim Rejections – 35 USC 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herron et al. (WO 02/16298).

Herron et al. teaches the oxidation of xylene to both 4-methyl benzaldehyde and toluic acid, under air pressure, using a supported gold catalyst (page 13, lines 21-40, example 13 and table 1; page 7, lines 16-20). The gold catalyst is in the form of elemental gold (page 3, lines 17-18) and metal particles (page 3, line 33), on a solid support (page 3, lines 16-17), in which Group VIII metals can also be used (page 3, lines 18-20).

Herron et al. is deficient in the sense that it does not explicitly use oxygen molecules in the oxidation reaction.

However, it is well known in the art that air, which contains oxygen, can be used for oxidation reactions in lieu of pure oxygen.

Therefore, it would be prima facie obvious to one of ordinary skill in the art at the time of the invention, to use air instead of pure oxygen in the oxidation reaction for converting an aromatic compound to the corresponding aldehyde and carboxylic acid. The expected result would be the efficient formation of both an aromatic aldehyde and an aromatic carboxylic acid in good yield for the chemical industry.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herron et al. (WO 02/16298), in view of Ishii et al. (US 5,958,821).

Herron et al. teaches the oxidation of xylene to both 4-methyl benzaldehyde and toluic acid, under air pressure, using a supported gold catalyst (page 13, lines 21-40,

example 13 and table 1; page 7, lines 16-20). The gold catalyst is in the form of elemental gold (page 3, lines 17-18) and metal particles (page 3, line 33), on a solid support (page 3, lines 16-17), in which Group VIII metals can also be used (page 3, lines 18-20).

Herron et al. is deficient in the sense that it does not teach the further conversion of the aromatic aldehyde with a primary alcohol to the aromatic carboxylic acid ester.

Ishii et al. teaches the method of oxidation of an aromatic compound having an alkyl substituent (see abstract; column 8, lines 57-58), by oxidizing it with oxygen into an aldehyde (column 9, lines 21-23) in the presence of Ag or Au (column 13, line 5), supported on a carrier (column 16, lines 18-21). The group VIII (group 8) elements (column 13, line 2) can also be further supported on the catalyst (column 16, lines 18-21). Ishii et al. further teaches the oxidation to produce an aromatic carboxylic ester (see abstract; column 9, lines 30-36), by the addition of a primary alcohol e.g. methanol, ethanol (column 29, line 2). Thus Ishii et al. teaches that oxidizing an aromatic aldehyde, using a primary alcohol as the solvent would give the corresponding aromatic carboxylic ester (column 29, lines 1-26). Furthermore, oxidation of aldehydes to carboxylic esters is old in the art.

Therefore, it would be prima facie obvious to one of ordinary skill in the art at the time of the invention, to use the teaching of Ishii et al. for the oxidation of Herron et al., to further oxidize the aromatic aldehyde to the carboxylic ester using a primary alcohol. The expected result would be the efficient formation of both an aromatic aldehyde,

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aromatic carboxylic acid and an aromatic carboxylic ester in good yield for the chemical industry.

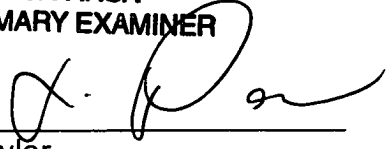
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer Y. Cho whose telephone number is (571) 272 6246. The examiner can normally be reached on 9 AM - 6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne Eyler can be reached on (571) 272 0871. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jennifer Cho
Patent Examiner
Art Unit: 1621

J. PARSA
PRIMARY EXAMINER

For 

Yvonne Eyler
Supervisory Patent Examiner
Technology Center 1600